

5 **TO WHOM IT MAY CONCERN:**

Be it known that I, Stanley G. Koch III, a resident of the city of Gladwin, County of Gladwin, State of Michigan, a citizen of the United States of America, have invented a new and useful device that is a

10 **FISHING TIP-UP**

that is described in this specification.

This application claims priority from provisional application 60/529,168, filed December 12, 2003.

BACKGROUND OF THE INVENTION

15 The present invention relates to the winter sport of ice fishing and a device for that activity. There is an advantage to be able to conveniently and quickly assemble and disassemble the ice fishing equipment. Moreover, it is advantageous to have a natural jiggling motion of the bait to entice the fish that is sought. Other examples of improvements include a flexible riser that provides a jiggling action without springs; an
20 assembly that provides the tip-up with a lower center of gravity than other jiggling tip-ups; line freeze protection; self adjusting ice shield; a reel locking mechanism; line free flow, among other advantages that will become evident from the following specification.

The prior art has laid claim to some of these advantages, however, most have not sought to combine all these elements to make a truly all in one device. In United States
25 Patent number 4,567,686 issued to Akom on February 4, 1986 there is disclosed a device that is collapsible, provides a wind scoop that is spring loaded and, a spring action that is triggered after the reel moves, moving a lever that activates a flag for strike indication. Another example of prior art is United States Patent number 4,373,287 issued to Grahl on February 15, 1983, giving reference to a wind driven jiggling tip such as Akom. There are
30 clear distinctions between Grahl and the present invention.

THE INVENTION

What is disclosed and claimed herein is a tip-up for ice fishing comprising in combination; a base, wherein the base has a distal end and a near end and has mounted on
35 the base, near the distal end, a cross member. The cross member has a median point and

5 the cross member has attached at the median point, a slidable bracket that is slidable along the base. The cross member is capable of locking to the base at the distal end of the base.

10 There is a flexible riser mounted near the near end of the base, the flexible riser having a top surface, a bottom surface, a near end and a distal end and the near end of the flexible riser is provided with a pull tab locking notch.

15 The pull tab erector is mounted on the top surface of the flexible riser; the pull tab erector has a near end, a distal end, a first side, a second side, a top surface and a bottom surface. The bottom surface, at the distal end of the pull tab erector, is attached to the top surface of the flexible riser. The near end of the pull tab erector is notched on the first side and the second side to fit into the near end of the pull tab erector notch. The pull tab erector is extended to fit into the flexible riser near end locking notch.

20 There is a rotatable reel with a rotatable spool surmounted essentially at the distal end of the pull tab erector, the reel having an outer casing. The outer casing has an outer surface, an inner surface, a near end; a distal end, an opening therethrough, and a reel handle lock in the near end of the outer casing. There is a removable inner core having a near end and a distal end. There is a handle mounted to the near end of the inner core and the inner core distal end is tapered to the end. The tapered surface has a groove in it. The inner core has two circular protrusions that ride on the inner surface of the outer casing and the rotatable reel has the ability to swing inward at least 90° when the handle is in the up position. Between the two circular protrusions is a notch that is used to limit the amount of line that can free flow from the reel as desired.

25 The reel inner core is removable and the inner core is confined to the inner surface of the reel by the reel core lock. The reel core lock is mounted to the outer surface of the reel. The reel core lock has a top surface, a bottom surface, a distal end, and a near end forming a tab. There is an opening through the top surface of the reel core lock.

30 A reel stop/ lock is mounted near the distal end of the outer casing of the reel to prevent the reel from rotating more than 90° and locking it in both position. That is the storage position and the deployed position.

5 There is mounted on the flexible riser essentially at its median point and near the second side, a flexible flag. There is also present, a notch in the flexible riser above the flexible flag to provide storage for the flexible flag when the flag is not in use. There is a opening through the distal end of the flexible riser top surface to accommodate a fishing line and the end of the flexible line tube at the distal end of the base that is incorporated
10 with the flexible tube, the flexible tube having a top end and a bottom end, wherein the top end of the flexible tube depends downwardly through an opening through the base and continues through the top surface of the self-adjusting ice shield, the self adjusting ice shield having a top surface, a bottom surface, and an outer edge. The flexible tube passes through a washer wherein the washer has a top surface and a bottom surface, the
15 flexible tube terminating at the bottom surface of the washer and supporting the self adjusting ice shield.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a full side view of the inventive tip-up assembled and set.

Figure 2 is a side view of the inventive tip-up collapsed down for storage or

20 transportation.

Figure 3 is a top view of the cross member fully locked in into the locked position.

Figure 4 is a top view of the flexible riser.

Figure 5 is front view of the rotatable reel.

25 Figure 6 is a front view of the removable inner core of the rotatable reel.

Figure 7 is a front view of the rotatable reel handle.

Figure 8 is a side view of the rotatable reel handle.

Figure 9 is a top view of rotatable reel in the deployed or fishing position.

Figure 10 is a top view of the rotatable reel in the storage position.

30 Figure 11 is a top view of flexible riser with slidable graduated measuring scale extended.

Figure 12 is a top view of the slidable graduated measuring device within the base.

DETAILED DESCRIPTION OF INVENTION

Reference will now be made to the drawings, specifically with reference to Figure 1, which is a side view of the inventive tip-up 25 assembled and in the set position. The base 1 has a near end 3 and a distal end 4 and is attached to cross member 5 at its median point 7 (see also Figure 2) by the slidable bracket 2. Also shown is the bottom surface 15
10 of flexible riser 11.

Now referring to Figure 2, wherein there is shown a full side view of the inventive tip-up of this invention, in a collapsed state for storage or transportation. The cross member 5 is substantially parallel to the base 1. The near end of the cross member 6 swings essentially 90° to the linear axis of the base 1 and nests under the near end 12 of
15 the flexible riser 11. The flexible riser 11 is attached to the base 1 at the attachment point 16. The bottom surface 24 of the pull tab erector 18 is visible. The distal end of the cross member 8 also swings 90°, however, in the opposite direction nesting under the distal end
20 of the base 4 and adjacent to the flexible tube 50 (line freeze protector).

Now with reference to Figure 3 which represents a top view of the cross member
20 5 and a portion of the base 1, wherein the cross member 5 is fully moved to the distal end of the base 4 into the locked position of the distal locking end of the slidable bracket 10. Also shown is the near end of the slidable bracket 9.

Figure 4 is a full top view of the flexible riser 11. Shown are the near end 12 of
the flexible riser 11 and the distal end 13 of the flexible riser. Also present is top surface
25 14 of the flexible riser 11. In the near end 12 of the flexible riser 11 is the pull tab locking notch 17 of the flexible riser 11 that is present to accept the near end 19 of the pull tab erector 18. The pull tab erector 18 is the locking mechanism for the flexible riser 11. The distal end 20 of the pull tab erector 18 on the bottom surface 24 of the pull tab erector 18
30 is where it is attached to the flexible riser 11. There is a notch 68 in a first side 21 of the pull tab erector 18 and a notch 69 in the second side 22 of the pull tab erector 18 forming a locking mechanism for the pull tab erector 17. The top surface 23 of the pull tab erector 18 is also present in Figure 4.

Referencing back to Figure 1 there is shown a clear side view of the inventive device herein assembled and set. The rotatable reel is represented by 26. What is meant
35 by rotatable is the ability of the reel to swing essentially 90° which if further illustrated by

5 figures 9 and 10. The rotatable reel consists of an outer casing 27, this outer casing has an outer surface 28 and inner surface 29.

With reference to Figure 5 this is a front view of the rotatable reel. Also present is the near end 30 of the outer casing 28 and the distal end 31 of the outer casing 28. On the top portion 27 of the outer casing 28 is an opening therethrough 32. In the near end 30 of 10 the outer casing 28 is a reel lock 33 which the reel handle 34 will fit securely into, placing the reel in the locked position.

Now with reference to Figure 6 that is a front view of the removable reel inner core 35 of the rotatable reel 26, the near end 36 of the inner core 35 is where the reel handle 34 of Figures 7 and 8 is attached. The distal end 37 of the removable reel inner 15 core 35 also incorporates the inner core distal end taper 38 and above that is the inner core distal end grove 39 which retrains the flexible flag 44 until there is reel movement and the flexible flag 44 is released indicating a strike. The inner core circular protrusions 40 enable the removable inner core 35 to rotate within the rotatable reel 26 inner surface 29 of the outer reel casing 28. Between the inner core circular protrusions 40 is the line 20 run out setting notch 64. Also present in figure 6 is inner core reel lock 41 which allows the inner core 35 to be easily slid out of the outer casing 27 by simply lifting the tab 53 on the inner reel core lock 41. There is also an opening 42 through the inner reel core lock that acts as a line guide to and from the rotatable reel 26. The removable reel inner core 35 is equipped with a diagonal notch or the adjustable line run out setting notch 64. 25 This allows the angler to preset an amount of line that can be drawn out of the reel before it will stop.

Figure 9 represents a top view of rotatable reel 26 in the engaged or fishing position. When the tip-up 25 is in the set position the rotatable reel 26 sits perpendicular to the flexible riser 11. Also present is the reel stop/ lock 43 which prevents the rotatable 30 reel 26 from swinging more than 90° in either direction.

Figure 10 represents a top view of the rotatable reel 26 in the storage position. The rotatable reel 26 swings in to allow for ease and protection in transportation and storage. The flexible flag 44 is also present in the transportation or storage mode. The reel stop/ lock 43 is also present here to represent how the rotatable reel 26 collapses to 35 fold essentially inline with the flexible riser 11.

5 Figure 11 is a top view of flexible riser 11 with graduated measuring system 62
and slidable measuring system 63 extended from within the base 1.

Figure 12 is a top view of the slidable graduated measuring system 63 within the
base 1.

Referring now to Figures 1-12, in Figure 1 the flexible flag 44 is present in the set
10 position. In Figure 2 the flexible flag 44 is in the storage position where the near end of
45 the flexible flag is attached to the top surface 14 of the flexible riser 11. The distal end
46 of flexible flag 44 then proceeds through the flexible flag storage notch 47 of the
flexible riser 11 of Figure 4. Figure 4 also shows the opening therethrough 48 at the
distal end 13 of the flexible riser 11. Figure 2 shows the top end 51 of flexible line tube
15 50 proceeds through the distal end 4 of the base 1. As it depends downwardly it becomes
flexible tube 50 terminating at the bottom end 52 of flexible line tube 50. Also present in
Figure 2 is the self adjusting ice shield 54 which has a desired effect of preventing the
fishing hole from freezing. Another effect of the self adjusting ice shield 54 is that it
limits the amount of ambient light that is allowed to pass through the opening in the ice
20 which reduces the possibility of alarming the fish. One other aspect of the self adjusting
ice shield is that it protects from fluctuations in water level. The self adjusting ice shield
54 has a top surface 55, a bottom surface 56 and an outer edge 57. There is also an
opening therethrough 58 to accommodate the flexible tube line protector 50. Attached to
the bottom end of the flexible line tube 52 is a washer 59. The washer 59 has top surface
25 60 which maintains contact with the self adjusting ice shield 54. The bottom surface of
the washer 61 is where the flexible line tube 50 terminates and attaches to the washer 59.

The present device is collapsible and all components fall within a very small and
simple plane, there are no items that protrude outside the horizontal or linear planes of the
flexible riser 11 of the device. The wind activated jigging aspect of the present device is
30 also clearly more efficient in that it does not require springs or a scoop to active. The
tension that is placed on the flexible riser 11 by locking it into place with a pull tab
erector 18 loads the entire flexible riser 11. In other words, the entire flexible riser 11
itself has spring action.

For example, Grahl has a cantilever design making the tip-up itself top heavy. A
35 good solid strike would tip this device quickly. The construction of the instant invention

5 gives it a lower center of gravity thus not allowing it to give way when struck by a larger fish. Even more central to the comparison is that in Grahl, there is no self adjusting ice shield or flexible tube to protect the line and hole from freezing. There is also the absence of a reel lock. Also not present is the ability to position the reel to automatically allow for the free flow of line from the reel or limit the amount of line that can free flow from the
10 reel. The jiggling action in Grahl is once again provided by the action of a spring. As explained supra, when assembled the instant invention's entire flexible riser acts as a spring when correctly set using the pull tab erector. Both Akom and Grahl use wing nuts to tighten and loosen the fasteners for their respective uprights. The instant invention is clearly superior. Also, in the instant invention as discussed infra, simply sliding the
15 20 25 30 35
slidable bracket toward the distal end of the base and locking it over the grommet, turning the cross member 90°, pulling the pull tab erector to attach to the notch at the near end of the flexible riser, provides a completely erected tip-up.

The strike indicator is also superior because instead of relying on the reel to move and moving another device that in turn releases the flag or strike indicator, there is only one movement of the inventive device herein. The present invention allows the flag or strike indicator to rest directly on a groove that is incorporated in the inner core reel taper. When set correctly, the reel need only move a fraction to activate the strike indicator or the flag. Incorporated within the device is a reel handle and reel lock. Both also can be incorporated to allow either the free flow of line or an automatic locking device. Also present is a flexible tube mounted in the base which will protect the line from freezing. At the terminus of the flexible tube is a self-adjusting ice shield that has not been incorporated into a wind driven jiggling tip-up in the manner that is represented by the inventive device herein. The rotatable reel (not the spool of the reel) is another feature not present in Akom, where the reel will turn and lock essentially 90° from the linear axis of the base, thereby protecting the reel during transportation and storage. The reel will also lock when it is in the deployed position.